

Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Claim Rejections – 35 USC § 102

Independent Claims

Claims 1-4, 6, 9-11, and 13-34 were rejected under 35 U.S.C. § 102(b) as being anticipated by Susumu et al. (JP 2002-057771).

Claim 1, as amended, recites a communication device including: a communication device body adapted for a first mode of operation; a display screen disposed in a generally parallel relationship with the device body in the first mode of operation; and pivoting means disposed between the display screen and the device body for permitting the display screen to pivot into a position generally orthogonal to the device body for a second mode of operation; wherein the action of pivoting the display screen from the generally parallel relationship with the device body into the position generally orthogonal to the device body switches the communication device from the first mode of operation into the second mode of operation.

Susumu et al. fails to disclose or fairly suggest a device wherein the action of pivoting the display screen from the generally parallel relationship with the device body into the position generally orthogonal to the device body switches the communication device from the first mode of operation into the second mode of operation.

Rather, Susumu et al. is understood to disclose a personal digital assistant (PDA) that may be physically transformed into multiple configurations, but the act of converting the PDA from one configuration to another does not switch the PDA's operation from one mode to another mode. Other than discuss the potential uses of the PDA, the reference does not disclose any information on how to switch between modes of operation.

With further regard to respective dependent claims, that depend directly or indirectly from claim 1, please note the remarks beginning on page 12 of the Reply.

For at least this reason, the rejection of claim 1 and claims 2-13 dependent therefrom should be withdrawn.

Claim 14, as amended, recites a method of operating a communication device in a first mode and a second mode, the method including the steps of: rotating a pivotal upper portion of the communication device to end the first mode and begin the second mode; actuating specific keys of the communication device for receiving user input; and rotating the pivotal upper portion to begin the first mode and to end the second mode.

Susumu et al. fails to disclose or fairly suggest a method wherein rotating a pivotal upper portion of the communication device to end the first mode and begin the second mode; actuating specific keys of the communication device for receiving user input; and rotating the pivotal upper portion to begin the first mode and to end the second mode.

Rather, Susumu et al. is understood to disclose a personal digital assistant (PDA) that may be physically transformed into multiple configurations, but the act of converting the PDA from one configuration to another does not end one mode of operation and begin another mode. Other than discuss the potential uses of the PDA, the reference does not disclose any information on how to end one mode and begin another mode.

With further regard to respective dependent claims, that depend directly or indirectly from claim 14, please note the remarks beginning on page 12 of the Reply.

For at least this reason, the rejection of claim 14 and claims 15-22 dependent therefrom should be withdrawn.

Claim 23, as amended, recites a communication device including: a communication device body in a first position adapted for a first mode of operation; a display screen disposed in a generally parallel relationship with the device body in the first mode of operation; pivoting means disposed between the display screen and the device body for permitting the display screen to pivot into a second position for a second mode of operation; wherein in the first mode of operation, keys of the communication device are located on one side of the display screen and in the second mode of operation, keys of the communication device are located on at least two sides of the display screen; and wherein the act of moving the display screen between the first and second positions switches between corresponding first and second modes of operation.

Susumu et al. fails to disclose or fairly suggest a device wherein the act of moving the display screen between the first and second positions switches between corresponding first and second modes of operation.

Rather, Susumu et al. is understood to disclose a personal digital assistant (PDA) that may be physically transformed into multiple configurations, but the act of converting the PDA from one configuration to another does not switch between modes of operation. Other than discuss the potential uses of the PDA, the reference does not disclose any information on how to switch between modes of operation.

With further regard to respective dependent claims, that depend directly or indirectly from claim 23, please note the remarks beginning on page 12 of the Reply.

For at least this reason, the rejection of claim 23 and claims 24-28 dependent therefrom should be withdrawn.

Claim 29, as amended recites a communication device including: a communication device body in a first position adapted for a first mode of operation; a display screen disposed in a generally parallel relationship with the device body in the first mode of operation; pivoting means disposed between the display screen and the device body for permitting the display screen to pivot into a second position for a second mode of operation; wherein in the first mode of operation, the communication device is operable by one hand of a user and in the second mode of operation, the communication device is operable by two hands of a user; and wherein the act of moving the display screen between the first and second positions switches between corresponding first and second modes of operation.

Susumu et al. fails to disclose or fairly suggest a device wherein the act of moving the display screen between the first and second positions switches between corresponding first and second modes of operation.

Rather, Susumu et al. is understood to disclose a personal digital assistant (PDA) that may be physically transformed into multiple configurations, but the act of converting the PDA from one configuration to another does not switch between modes of operation. Other than discuss the potential uses of the PDA, the reference does not disclose any information on how to switch between modes of operation.

With further regard to respective dependent claims, that depend directly or indirectly from claim 29, please note the remarks beginning on page 12 of the Reply.

For at least this reason, the rejection of claim 29 and claims 30-34 dependent therefrom should be withdrawn.

Dependent Claims

Regarding claims 2-4, 27-28, and 33-34, the Examiner stated that "Susumu teaches said second mode of operation comprises gaming and said device further comprises a gaming pad on the communication body and beneath the display screen." The Examiner pointed to drawings 1 and 2 to support the argument.

Claims 2-4 recite gaming as the second mode of operation and recite the structure of a gaming pad. Claims 27-28 and 33-34 recite the structure of a gaming pad.

Susumu et al. fails to disclose or fairly suggest a device to be used for gaming or that includes a gaming pad.

Rather, Susumu et al. is understood to disclose a personal digital assistant (PDA) that may be physically transformed into multiple configurations for operating in multiple modes of operation. Susumu et al. is understood to be a PDA for business use and discloses several business functions such as cellular phone, creation and transmission of e-mail, and connection to the internet. The reference does not teach or disclose a device for gaming, nor does the specification and drawings disclose a gaming pad for operating the device as a gaming device.

For at least this reason, the rejection of claims 2-4, 27-28, and 33-34 should be withdrawn.

Regarding claims 6, 10-11, 19-21, 24-25, and 30-31, the Examiner stated that "Susumu teaches wherein the gaming pad comprises a plurality of buttons." The Examiner pointed to drawing 1 to support the argument.

As noted in the above discussion above, Susumu et al. does not teach or disclose a device for gaming, nor does the specification and drawings disclose a gaming pad for operating the device as a gaming device.

For at least this reason, the rejection of claims 6, 19, 21, 25, and 31 should be withdrawn.

Regarding claims 15, 18, 22, 26, and 32, the Examiner stated that “Susumu teaches the first mode of operation is telecommunication and the method further comprises the steps of: determining whether the communication device is receiving an incoming call; and alerting a user of the incoming call.” The Examiner pointed to paragraph 46 for support.

Based a review of an English translation by machine of the Susumu et al., including paragraph 46 (copy enclosed for the Examiner's convenience), the reference does not teach or disclose any method or device structure for determining whether the communication device is receiving an incoming call and alerting the user of the incoming call.

For at least this reason, the rejection of claims 15, 18, 22, 26, and 32 should be withdrawn.

Regarding claims 16 and 17, The Examiner stated that “Susumu teaches the step of alerting the user comprises the steps of: alerting the user via at least one of an audio, visual, and tactile alert; and pausing the second mode.” The Examiner again pointed to paragraph [46] of Susumu to support the argument.

The English translation by machine of paragraph 46 of Susumu et al. is reprinted below:

[0046] Next, the personal digital assistant of the 2nd operation gestalt of this invention is explained below with reference to drawing 4 – drawing 6. The personal digital assistant 51 of the 2nd operation gestalt is also the so-called cellular phone, and possesses the body 52 which makes plate-like [of an abbreviation rectangle], and this body 52 which makes plate-like [of the same abbreviation rectangle as abbreviation]. Based a review of an English translation by machine of the Susumu et al., including paragraph 46, the reference does not teach or disclose any method or device structure for determining whether the communication device is receiving an incoming call and alerting the user of the incoming call.

Based a review of an English translation by machine of the Susumu et al., including paragraph 46 (above) the reference does not teach or disclose any method for alerting the user via at least one of an audio, visual, and tactile alert and pausing the second mode of operation.

For at least this reason, the rejection of claims 16 and 17 should be withdrawn.

Claim Rejections - 35 USC § 103

Claims 5, 7-8, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Susumu et al. (JP 2002-057771).

The Examiner admitted that "Susumu does not specifically teach plurality of buttons being pause buttons, joystick, directional arrows, and keys with additional indicia." The Examiner, however, rejected the claims stating:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Susumu's actuation keys (15) shown in drawing 1 in a variety of ways because the type of keys to be used in key-based input device is obviously a design choice.

As explained throughout this response, Susumu et al. is understood to be a PDA for business use and discloses several business functions such as cellular phone, creation and transmission of e-mail, and connection to the internet. The reference does not teach or disclose a device for gaming, nor does the specification and drawings disclose a gaming pad for operating the device as a gaming device. As such, one of ordinary skill in the art would not review the reference and chose to incorporate a joystick or directional arrows used for gaming. Moreover, the reference does not teach or disclose a "pause" ability, and thus one of ordinary skill in the art would not be motivated to incorporate a "pause button."

Still further, regardless of the purpose for the Susumi et al. buttons, they still are not disclosed for use to change the operational mode of the device based on pivoting or rotating the display screen

For at least these reasons, there is no prima facie obviousness of the claimed subject matter, and the rejection of claims 5 and 7-8 should be withdrawn.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

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PATENT ABSTRACTS OF JAPAN

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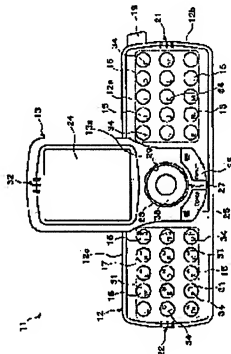
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(54) PERSONAL DIGITAL ASSISTANT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a personal digital assistant of which the number of operation keys is increased as required without losing the portability resulting in enhancing the operability.

SOLUTION: A connection section 27 that connects a body 12 on one side 12a of which operation keys 15 are arranged to a display section 13 having a display device 24 for information indication rotatably, is placed at a position between two separated operation key areas 16 and 17 in a state that a rotary axial line of the display section 13 with respect to the body 12 is positioned along a direction orthogonal to the one side 12a.



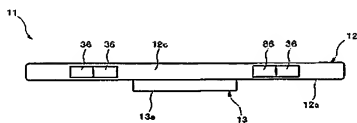
LEGAL STATUS

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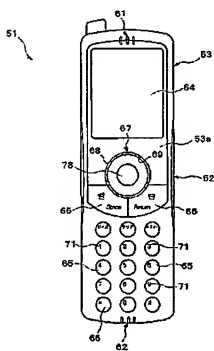
20.08.2003

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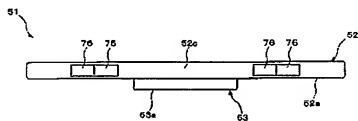
【図3】



【図5】



【図6】



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CLAIMS

[Claim(s)]

[Claim 1] The body with which the actuation key has been arranged in the surface part of 1, and the display which has the display which performs an information display, It has the connection section with which these bodies and a display are made to connect pivotable. In said surface part of 1 of said body It is the personal digital assistant which two separated actuation key areas are prepared and is characterized by said connection section arranging axis of rotation of said display to said body in the location between said two separated actuation key areas in the condition of having made it meeting in the direction which intersects perpendicularly with said surface part of 1.

[Claim 2] The personal digital assistant according to claim 1 characterized by arranging the pointing device at said connection section or said display.

[Claim 3] While said displays are parallel and overlap to said body, only one side of said two separated actuation key areas The 1st condition of a wrap, The personal digital assistant according to claim 1 or 2 characterized by supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas while intersecting perpendicularly to said body and projecting in the side of 1 from this body.

[Claim 4] The personal digital assistant according to claim 3 which the voice output section which performs a voice output is prepared in said surface part side of 1 at said body, and is characterized by forming output voice passage opening which makes said display pass the voice from said voice output section in said 1st condition.

[Claim 5] Said display is a personal digital assistant according to claim 1 or 2 characterized by intersecting perpendicularly with the 1st condition of a wrap to said body in said both two separated actuation key areas while it is parallel and overlapping to said body, and supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas while projecting in the method of both sides from this body.

[Claim 6] Claim 3 characterized by arranging the actuation key of said surface part of 1, and the auxiliary operation key operated simultaneously in the side face of said body arranged in said 2nd condition at an upper part [of the information display of said display], and ** side thru/or the personal digital assistant of five given in any 1 term.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the personal digital assistant suitable for making creation and transmission of e-mail, connection with the Internet, etc.

[0002]

[Description of the Prior Art] In recent years, personal digital assistants, such as a cellular phone, have various functions, such as creation and transmission of e-mail, and connection with the Internet, besides the usual message. If it is only the usual message, since the input of the telephone number etc. is just performed as actuation, there will be few actuation keys and it will end. However, in order to carry out various actuation or to carry out various actuation about an Internet connectivity about e-mail creation, more actuation keys are needed, but in order to display more texts of e-mail clearly or to, display more information through the Internet clearly on the other hand, it is necessary to enlarge a display. Of course, it is not enlargeable if it is what is carried at all. For this reason, after securing the magnitude of a display conventionally, as each actuation key is made to take charge of many actuation, respectively, it corresponds to more various actuation, without increasing the number of actuation keys.

[0003]

[Problem(s) to be Solved by the Invention] However, there was a problem that actuation will become

very complicated, in corresponding to various actuation as mentioned above, as each actuation key is made to take charge of many actuation, respectively.

[0004] Therefore, this invention aims at offer of the personal digital assistant which can increase the number of actuation keys if needed, consequently can raise operability, without spoiling portability.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the personal digital assistant of this invention The body with which the actuation key has been arranged in the surface part of 1, and the display which has the display which performs an information display, It has the connection section with which these bodies and a display are made to connect pivotable. In said surface part of 1 of said body Two separated actuation key areas are prepared and said connection section is characterized by arranging in the location between said two separated actuation key areas in the condition of having made axis of rotation of said display to said body meeting in the direction which intersects perpendicularly with said surface part of 1.

[0006] thus, the condition that the connection section with which a display is made to connect pivotable to a body made axis of rotation of the display to a body meet in the direction which intersects perpendicularly with the surface part of 1 of a body -- this -- it arranges in the location between two separated actuation key areas of the surface part of 1. For this reason, if a display is laid on top of a body, for example so that at least one side of two separated actuation key areas may usually be covered even if it increases the number of the actuation keys of a body It can prevent using the whole as a compact and spoiling portability, and by rotating a display to a body if needed, if it is made to expose two separated actuation key areas, the number of actuation keys can be increased and operability can be raised.

[0007] Moreover, the personal digital assistant of this invention is characterized by arranging the pointing device at said connection section or said display.

[0008] Thus, since the pointing device is arranged at the connection section or a display, it is not necessary to provide for a body at dedication the tooth space which arranges a pointing device, and a pointing device can be arranged efficiently.

[0009] While said displays are parallel and overlap to said body, the personal digital assistant of this invention only one side of said two separated actuation key areas Furthermore, the 1st condition of a wrap, While intersecting perpendicularly to said body and projecting in the side of 1 from this body, it is characterized by supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas.

[0010] For this reason, it is considering as the 1st condition of it being parallel and piling up a display to a body so that one side of two separated actuation key areas may usually be covered even if it increases the number of the actuation keys of a body. It can prevent certainly using the whole as a compact certainly and spoiling portability. By considering as the 2nd condition of exposing two separated actuation key areas, while rotating a display to a body if needed, and this display's intersecting perpendicularly to a body and projecting in the side of 1 from this body, the number of actuation keys can be increased and operability can be raised.

[0011] In addition, the voice output section which performs a voice output to said surface part side of 1 is prepared in said body, and the personal digital assistant of this invention is characterized by forming output voice passage opening which makes said display pass the voice from said voice output section in said 1st condition.

[0012] In order that a display may pass the voice from the voice output section prepared in the surface part side of said 1 of a body from output voice passage opening in the 1st condition, it becomes unnecessary thereby, to prepare the voice output section in a display.

[0013] While said displays are parallel and overlap to said body, the personal digital assistant of this invention said both two separated actuation key areas Furthermore, the 1st condition of a wrap, While intersecting perpendicularly to said body and projecting in the method of both sides from this body, it is characterized by supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas.

[0014] For this reason, it is considering as the 1st condition of it being parallel and piling up a display to a body so that both two separated actuation key areas may usually be covered even if it increases the number of the actuation keys of a body. It can prevent certainly using the whole as a compact certainly and spoiling portability. By considering as the 2nd condition of exposing two separated actuation key areas, while rotating a display to a body if needed, and this display's intersecting perpendicularly to a body and projecting in the method of both sides from this body, the number of actuation keys can be increased and operability can be raised.

[0015] In addition, since a display is enlarged so that both two separated actuation key areas may be covered, a nearby actuation key many can be prepared in a display, consequently the operability of alter operation can be raised further.

[0016] Furthermore, the personal digital assistant of this invention is characterized by arranging the actuation key of said surface part of 1, and the auxiliary operation key operated simultaneously in the side face of said body arranged in said 2nd condition at an upper part

[of the information display of said display], and ** side.

[0017] Thus, since the auxiliary operation key prepared in the side face of the body arranged in the 2nd condition at an upper part

[of the information display of a display] and ** side is constituted so that it may operate simultaneously with the actuation key of the surface part of 1, two kinds of functions when not operating simultaneously with the case where an auxiliary operation key is operated simultaneously by the actuation key of the surface part of 1 can be given.

[0018]

[Embodiment of the Invention] First, the personal digital assistant of the 1st operation gestalt of this invention is explained below with reference to drawing 1 - drawing 3 . The personal digital assistant 11 of the 1st operation gestalt is the so-called cellular phone, and possesses the body 12 which makes plate-like

[of an abbreviation rectangle], and the display 13 which makes plate-like

[of an abbreviation rectangle shorter than this body 12].

[0019] As shown in a body 12 at drawing 1 , many actuation keys 15 and 15 and -- are arranged at surface part 12a (space near side) of one among the double-sided sections in the thickness direction (direction which intersects perpendicularly with the space in drawing 1).

[0020] The actuation keys 15 and 15 of these large number and -- are not prepared in the center in the

die-length direction (longitudinal direction in drawing 1) of a body 12. It separates into the both sides in the die-length direction of a body 12, and is arranged, consequently two the 1st actuation key areas (actuation key area) 16 and the 2nd actuation key areas (actuation key area) 17 which were separated are established in surface part 12a of 1 of a body 12 in the die-length direction of this body 12.

[0021] Moreover, the antenna section 19 is projected and formed in the body 12 at edge surface part 12b of 1 in the die-length direction.

[0022] The voice-input section 22 for performing voice input is formed in the location which the voice output section 21 which performs a voice output in the location which is the end section by the side of the antenna section 19 in the die-length direction of a body 12, and serves as a center section in the cross direction (the vertical direction in drawing 1) of a body 12 is the other end in the die-length direction of a body 12, and serves as a center section in the cross direction of a body 12 at surface part 12a of 1 of a body 12, respectively.

[0023] The display 24 which becomes a display 13 from the liquid crystal device which performs an information display to surface part 13a (space near side in drawing 1) of one among the double-sided sections in the thickness direction (direction which intersects perpendicularly with the space in drawing 1), and the actuation keys 25 and 25 are arranged.

[0024] And the connection section 27 which makes a display 13 connect with this body 12 pivotable is formed in the location which becomes between both the actuation key areas 16 and 17 in surface part 12a of 1 of a body 12.

[0025] this connection section 27 -- the shape of a cylinder -- making -- from surface part 12a of 1 of a body 12 -- this -- with the circular supporter 28 which arranges an axis in the direction which intersects perpendicularly with surface part 12a of 1, and projects in it It has the fitting hole 29 of the circle configuration which has arranged the axis to the display 13 and was formed in the thickness direction at it, and a display 13 will be supported pivotable focusing on the axis of the fitting hole 29 and the circular supporter 28 to a body 12 by making this fitting hole 29 carry out fitting of the circular supporter 28. When it is in this support condition, a display 13 will always be exposed, without arranging a display 24 and the actuation keys 25 and 25 to the opposite side to a body 12 in that thickness direction, consequently covering these displays 24 and the actuation keys 25 and 25 by the body 12.

[0026] Here, in the attachment condition to which the fitting hole 29 was made to carry out fitting of the circular supporter 28 in this way, the connection section 27 regulates migration of the direction which meets said axis of the display 13 to a body 12, consequently actuation other than rotation of a display 13 to a body 12 centering on said axis is regulated. Moreover, the signal-transmission section which can exchange the signal of a display 13 and a body 12 and which is not illustrated is prepared in the connection section 27 irrespective of the rotation location.

[0027] By the above, the connection section 27 will arrange said axis of rotation in the center in the die length direction of a body 12, and the center in the cross direction of a body 12, if axis of rotation of the display 13 to the medial axis line 12, i.e., the body, of the circular supporter 28 be arranged in the location between two separated actuation key areas 16 and 17 in the condition of having make it meet in the direction which intersect perpendicularly with surface part 12a of 1 of a body 12 and be seen from die length relation.

[0028] And if displays 13 overlap in parallel with the antenna section 19 side of a body 12 by the connection section 27 as shown in drawing 2, a personal digital assistant 11 will be in the 1st condition of making an I-beam as a whole. When it is in this 1st condition, a display 13 will cover all the actuation keys 15 and 15 and -- which it came out of the two separated actuation key areas 16 and 17 on the other hand, and have been arranged only in the 1st actuation key area 16 by the side of a certain antenna section 19.

[0029] The display 13 is set up so that it may not project from a body 12 in the cross direction and the die-length direction, and it makes all the actuation keys 15 and 15 and -- which have been arranged only in the 2nd actuation key area 17 which is another side of the two separated actuation key areas 16 and 17 which was prepared in surface part 12a of 1 of a body 12 exposed to a transverse-plane side in the 1st condition here. Of course, the display 24 and the actuation keys 25 and 25 which were prepared in surface part 13a of 1 of this display 13 are also in an exposure at a transverse-plane side at this time.

[0030] In the 1st condition moreover, a personal digital assistant 11 To all the actuation keys 15 and 15 and -- in the 2nd actuation key area 17 which will be used in the longwise condition of having turned the display 24 side of a display 13 up, and was established in the transverse-plane side The alphabetic character 31 corresponding to each actuation when making this 1st condition into a busy condition is describing

[the side near a display 24] that it turns up along the die-length direction of a body 12. In addition, that display direction is set up so that the opposite side may always become the upper part side of an

information display to the connection section 27, and in the 1st condition, the alphabetic character 31 of the display 24 of a display 13 corresponds with the direction of this information display. Here, the 1st condition is the case where it talks the usual man personal over the telephone, a figure etc. describes as an alphabetic character 31 corresponding to this, and the part constitutes the ten key.

[0031] Penetration formation of the output voice passage opening 32 which makes a display 13 pass the voice outputted to the location which laps with the voice output section 21 in the 1st condition from this voice output section 21 is carried out in the thickness direction.

[0032] On the other hand, when a display 13 rotates 90 degrees in the predetermined direction to surface part 12a of 1 to the 1st condition with an parallel condition by the connection section 27, as it is shown in drawing 1, it intersects perpendicularly to a body 12, and a projection and a personal digital assistant 11 will be in the 2nd condition of making T mold as a whole in the side of 1 in the cross direction of this body 12 to this body 12. When it is in this 2nd condition, a display 13 makes all the actuation keys 15 and 15 and -- in both the two separated 1st actuation key areas 16 and the 2nd actuation key area 17 exposed to a transverse-plane side. Of course, the display 24 and the actuation keys 25 and 25 also at this time which were prepared in surface part 13a of 1 of this display 13 are also exposed to a transverse-plane side.

[0033] When it is in this 2nd condition, the display 13 is set up so that it may project only in the side of bodies 12-1 in that die-length direction.

[0034] In the 2nd condition moreover, a personal digital assistant 11 It will be used in the reverse T character condition which turned the display 24 side of a display 13 up. To all the actuation keys 15 and 15 and -- in the 1st actuation key area 16 and the 2nd actuation key area 17 suitable for a transverse-plane side Respectively, the alphabetic character 34 corresponding to each actuation when making this 2nd condition into a busy condition is describing

[the side near a display 24] that it turns up along the cross direction of a body 12. In addition, as described above, that display direction is set up so that the opposite side may always become the upper part side of an information display to the connection section 27, and the alphabetic character 34 of the display 24 of a display 13 corresponds with the direction of this information display in the 2nd condition. Here, the 2nd condition is the case where creation and transmission of e-mail, connection with the Internet, etc. are made, and the Roman alphabet etc. is describing it as an alphabetic character corresponding to this.

[0035] The above result, the alphabetic characters 31 and 34 corresponding to each of the 1st condition and the 2nd condition change an include angle in all the actuation keys 15 and 15 and -- in the 2nd actuation key area 17 90 degrees, and are describing at them, respectively.

[0036] And in the 2nd condition, as shown in drawing 3 , the actuation keys 15 and 15 of surface part 12a of 1, and -- and the auxiliary operation keys 36 and 36 operated simultaneously are arranged at side-face 12c of the body 12 arranged at an upper part

[of the information display of a display 24], and ** side (on

[in drawing 1]). Here, the same auxiliary operation keys 36 and 36 as the part which projects on both sides through a display 13 in the die-length direction of a body 12 are arranged, respectively. And in case the actuation key 15 of the left-hand side 2nd actuation key area 17 is operated with the left hand in the condition of having turned the display 24 up The auxiliary operation keys 36 and 36 on the right of a display 13 will be operated if needed with right hand holding a body 12. In case similarly the actuation key 15 of the right-hand side 1st actuation key area 16 is operated with the right hand in the condition of having turned the display 24 up, the auxiliary operation keys 36 and 36 on the left of a display 13 will be operated if needed with left hand holding a body 12.

[0037] Here, the connection section 27 makes the display 13 and the body 12 pivotable only in

[between the 1st condition of the above, and the 2nd condition] 90 degrees.

[0038] Inside the connection section 27, the pointing device 38 for performing migration of the input location on a display 24, a transliteration, etc. is arranged toward the transverse-plane side. This pointing device 38 is making the shape of the approximate circle board, and the thing to which the migration direction of an input location is made to show in the direction of the press location to a center, the thing to which the migration direction of an input location is made to show in the direction which made and pushed down the letter of a projection are used.

[0039] the condition that the connection section 27 with which a display 13 is made to connect pivotable to a body 12 made axis of rotation of the display 13 to a body 12 meet in the direction which intersects perpendicularly with surface part 12a of 1 of a body 12 according to the personal digital assistant 11 of the 1st operation gestalt described above -- this -- it arranges in the location between two separated actuation key areas 16 and 17 which was prepared in surface part 12a of 1. For this reason, it is considering as the actuation keys 15 and 15 of a body 12, and the 1st condition of -- of it being parallel and piling up a display 13 to a body 12 so that one actuation key area 16 of two

separated actuation key areas 16 and 17 may usually be covered even if it increases a number, and can prevent certainly using the whole as a compact certainly and spoiling portability. When creation and transmission of e-mail, connection with the Internet, etc. are made on the other hand, By considering as the 2nd condition of exposing two separated actuation key areas 16 and 17, while rotating a display 13 to a body 12, and this display's 13 intersecting perpendicularly to a body 12 and projecting in the side of these bodies 12-1 The actuation keys 15 and 15 and the number of -- can be increased, and the operability of alter operation can be raised. And since a display 24 is formed in the transverse-plane side of the display 13 which covers the actuation key area 16 or is exposed, the magnitude of this display 24 is also securable.

[0040] Therefore, after preventing securing the magnitude of a display 24 and spoiling portability certainly, the actuation keys 15 and 15 and the number of -- can be increased if needed, and operability can be raised.

[0041] Moreover, since the pointing device 38 is arranged at the connection section 27, it is not necessary to provide the tooth space which arranges a pointing device 38 to dedication, and a pointing device 38 can be arranged efficiently. Therefore, since the whole is further made to a compact, spoiling portability is lost further. In addition, a pointing device 38 may be arranged to a display 13.

[0042] In order that a display 13 may pass the voice from the voice output section 21 prepared in the surface part 12a side of 1 of a body 12 from the output voice passage opening 32 in the 1st condition, it becomes unnecessary furthermore, to prepare the voice output section which contains a loudspeaker etc. in a display 13.

[0043] Therefore, magnitude of the display 24 in a display 13 can be enlarged further.

[0044] In addition, the auxiliary operation keys 36 and 36 prepared in side-face 12c of the body 12 arranged at an upper part

[of the information display of a display 24], and ** side in the 2nd condition Since it constitutes so that it may operate simultaneously with the actuation keys 15 and 15 of surface part 12a of 1, and --, respectively, two kinds of functions when not operating simultaneously with the case where the auxiliary operation key 36 is operated simultaneously by the actuation keys 15 and 15 of surface part 12a of 1 and -- can be given.

[0045] Therefore, the function of the actuation keys 15 and 15 and -- can be increased further.

[0046] Next, the personal digital assistant of the 2nd operation gestalt of this invention is explained below with reference to drawing 4 - drawing 6 . The personal digital assistant 51 of the 2nd operation gestalt is also the so-called cellular phone, and possesses the body 52 which makes plate-like

[of an abbreviation rectangle], and this body 52 and the display 53 which makes plate-like

[of the same abbreviation rectangle as abbreviation].

[0047] As shown in a body 52 at drawing 4 , many actuation keys 55 and 55 and -- are arranged at surface part 52a (space near side) of one among the double-sided sections in the thickness direction (direction which intersects perpendicularly with the space in drawing 4).

[0048] The actuation keys 55 and 55 of these large number and -- are not prepared in the center in the die-length direction (longitudinal direction in drawing 4) of a body 52. It separates into the both sides in the die-length direction of a body 52, and is arranged, consequently two the 1st actuation key areas (actuation key area) 56 and the 2nd actuation key areas (actuation key area) 57 which were separated are established in surface part 52a of 1 of a body 52 in the die-length direction of this body 52.

[0049] Moreover, the antenna section 59 is projected and formed in the body 52 at edge surface part 52b of 1 in the die-length direction.

[0050] The display 64 which becomes a display 53 from the liquid crystal device which performs an information display to surface part 53a (space near side in drawing 4) of one among the double-sided sections in the thickness direction (direction which intersects perpendicularly with the space in drawing 4), and many actuation keys 65 and 65 and -- are arranged.

[0051] Moreover, the voice-input section 62 for performing voice input is formed in the location which the voice output section 61 which performs a voice output in the location which is the end section by the side of the display 64 in the die-length direction (the vertical direction in drawing 4) of a display 53, and serves as a center section in the cross direction (longitudinal direction in drawing 4) is the other end in the die-length direction of a display 53, and serves as a center section in the cross direction at surface part 53a of 1 of a display 53, respectively.

[0052] And the connection section 67 which makes a display 53 connect with this body 52 pivotable is formed in the location which becomes between both the actuation key areas 56 and 57 in surface part 52a of 1 of a body 52.

[0053] this connection section 67 -- the shape of a cylinder -- making -- from surface part 52a of 1 of a body 52 -- this -- with the circular supporter 68 which arranges an axis in the direction which intersects perpendicularly with surface part 52a of 1, and projects in it It has the fitting hole 69 of the circle configuration which has arranged the axis to the display 53 and was formed in the thickness direction at it, and a display 53 will be supported pivotable focusing on the axis of the fitting hole 69 and the circular supporter 68 to a body 52 by making this fitting hole 69 carry out fitting of the circular supporter 68. When it is in this support condition, a display 53 will always be exposed, without arranging a display 64 and the actuation keys 65 and 65, and -- to the opposite side to a body 52 in that thickness direction, consequently covering these displays 64 and the actuation keys 65 and 65, and -- by the body 52.

[0054] Here, in the attachment condition to which the fitting hole 69 was made to carry out fitting of the circular supporter 68 in this way, the connection section 67 regulates migration of the direction which meets said axis of the display 53 to a body 52, consequently actuation other than rotation of a display 53 to a body 52 centering on said axis is regulated. Moreover, the signal-transmission section which can exchange the signal of a display 53 and a body 52 and which is not illustrated is prepared in the connection section 67 irrespective of the rotation location.

[0055] By the above, the connection section 67 will arrange said axis of rotation in the center in the die length direction of a body 52, and the center in the cross direction of a body 52, if axis of rotation of the display 53 to the medial axis line 52, i.e., the body, of the circular supporter 68 be arrange in the location between two separated actuation key areas 56 and 57 in the condition of having make it meet in the direction which intersect perpendicularly with surface part 52a of 1 of a body 52 and be see from die length relation. In addition, axis of rotation of the display 53 to a body 52 is arranged to the display 53 in the center in the die-length direction of this display 53, and the center in the cross direction of a display 53.

[0056] And if displays 53 overlap covering an overall length in parallel with a body 52 by the connection section 67 as shown in drawing 5, a personal digital assistant 51 will be in the 1st condition of making an I-beam as a whole. When it is in this 1st condition, a display 53 will cover all the actuation keys 55 and 55 and -- which have been arranged at both two separated actuation key areas 56 and 57.

[0057] It sets in the 1st condition here. A display 53 It is set up so that it may be in agreement over the perimeter or may be located inside, without projecting to a body 52 in the cross direction and the die-length direction. All the actuation keys 55 and 55 and -- which were prepared in surface part 52a of 1 of a body 52 as mentioned above are covered by the display 53, and it will be in the display 64 and the actuation keys 65 and 65 which were prepared in surface part 53a of 1 of this display 53, and the condition that -- is exposed to a transverse-plane side.

[0058] And a personal digital assistant 51 will be used in the longwise condition of having turned the display 64 side of a display 53 up, and the alphabetic character 71 corresponding to each actuation in all the actuation keys 65 and 65 and -- which were prepared in the display 53 is describing

[the side near a display 64] that the 1st condition turns up along the body 52 and the die-length direction of a display 53. In addition, that display direction is set up so that the opposite side may always become the upper part side of an information display to the connection section 67, and in the 1st condition, the alphabetic character 71 of the display 64 of a display 53 corresponds with the direction of this information display. Here, the 1st condition is the case where it talks the usual man personal over the telephone, a figure etc. describes as an alphabetic character 71 corresponding to this, and the part constitutes the ten key.

[0059] On the other hand, if a display 53 rotates

[by the connection section 67] 90 degrees in the predetermined direction to the 1st condition with an parallel condition to surface part 52a of 1, as shown in drawing 4, this display 53 intersects perpendicularly to a body 52, and projects in the method of the both sides in the cross direction of this body 52 to this body 52. Consequently, a personal digital assistant 51 will be in the 2nd condition of making an X type as a whole. When it is in this 2nd condition, a display 53 will be in the condition of exposing all the actuation keys 55 and 55 and -- in both the two separated 1st actuation key areas 56 of a body 52, and the 2nd actuation key area 57 to a transverse-plane side. Of course, the display 64 prepared in surface part 53a of 1 of this display 53 and the actuation keys 65 and 65, and -- are also exposed to a transverse-plane side at this time.

[0060] In the 2nd condition moreover, a personal digital assistant 51 To all the actuation keys 55 and 55 and -- which will be used in the state of + character which turned the display 64 side of a display 53 up, and are in the 1st actuation key area 56 and the 2nd actuation key area 57 Respectively, the alphabetic character 74 corresponding to each actuation when making this 2nd condition into a busy condition is describing

[the side near a display 64] that it turns up along the cross direction of a body 52. In addition, as

described above, that display direction is set up so that the opposite side may always become the upper part side of an information display to the connection section 67, and in the 2nd condition, the alphabetic character 74 of the display 64 of a display 53 corresponds with the direction of this information display. Here, the 2nd condition is the case where creation and transmission of e-mail, connection with the Internet, etc. are made, and the Roman alphabet etc. is describing it as an alphabetic character 74 corresponding to this. At this time, the actuation keys 65 and 65 and -- which were prepared in surface part 53a of 1 of a display 53 are also in an exposure, and the alphabetic character 71 which constitutes these actuation keys 65 and 65 and the ten key described at -- also serves as the posture in which the side near a display 64 turns up.

[0061] And in the 2nd condition, as shown in drawing 6, the actuation keys 65 and 65 of the actuation keys 55 and 55 of surface part 52a of 1 of a body 52, --, surface part 53a of 1 of a display 53, and -- and the auxiliary operation keys 76 and 76 operated simultaneously are arranged at side-face 52c of the body 52 arranged at an upper part

[of the information display of a display 64], and ** side (on

[in drawing 4]). Here, the same auxiliary operation keys 76 and 76 as the part which projects on both sides through the display 53 of side-face 52c of a body 52 are arranged, respectively. And in case the actuation key 55 of the left-hand side 2nd actuation key area 57 is operated with the left hand in the condition of having turned the display 64 up The auxiliary operation keys 76 and 76 on the right of a display 53 will be operated if needed with right hand holding a body 52. In case similarly the actuation key 55 of the right-hand side 1st actuation key area 56 is operated with the right hand in the condition of having turned the display 64 up, the auxiliary operation keys 76 and 76 on the left of a display 53 will be operated if needed with left hand holding a body 52. Moreover, in case the actuation key 65 of a display 53 is operated with the right hand in the condition of having turned the display 64 up, for example, the auxiliary operation keys 76 and 76 on the left of a display 53 will be operated if needed with left hand holding a body 52.

[0062] Here, the connection section 67 makes the display 53 and the body 52 pivotable only in

[between the 1st condition of the above, and the 2nd condition] 90 degrees.

[0063] Inside the connection section 67, the pointing device 78 for performing migration of the input location on a display 64, a transliteration, etc. is arranged toward the transverse-plane side. This pointing device 78 is making the shape of the approximate circle board, and the thing to which the migration direction of an input location is made to show in the direction of the press location to a center, the thing to which the migration direction of an input location is made to show in the direction which

made and pushed down the letter of a projection are used.

[0064] the condition that the connection section 67 with which a display 53 is made to connect pivotable to a body 52 made axis of rotation of the display 53 to a body 52 meet in the direction which intersects perpendicularly with surface part 52a of 1 of a body 52 according to the personal digital assistant 51 of the 2nd operation gestalt described above -- this -- it arranges in the location between two separated actuation key areas 56 and 57 which was prepared in surface part 52a of 1. For this reason, it is considering as the actuation keys 55 and 55 of a body 52, and the 1st condition of -- of it being parallel and piling up a display 53 to a body 52 so that both two separated actuation key areas 56 and 57 may usually be covered even if it increases a number, and can prevent certainly using the whole as a compact certainly and spoiling portability. When creation and transmission of e-mail, connection with the Internet, etc. are made on the other hand, By considering as the 2nd condition of exposing two separated actuation key areas 56 and 57, while rotating a display 53 to a body 52, and this display's 53 intersecting perpendicularly to a body 52 and projecting in the method of both sides from this body 52 The actuation keys 55 and 55 and the number of -- can be increased, and the operability of alter operation can be raised. And since a display 64 is formed in the transverse-plane side of the display 53 which covers the actuation key areas 56 and 57, or is exposed, the magnitude of this display 64 is also securable.

[0065] Therefore, after preventing securing the magnitude of a display 64 and spoiling portability certainly, the actuation keys 55 and 55 and the number of -- can be increased if needed, and operability can be raised.

[0066] In addition, since a display 53 is enlarged so that both two separated actuation key areas 56 and 57 may be covered, the nearby actuation keys 65 and 65 many and -- can be prepared in a display 53, consequently the operability of alter operation can be raised further.

[0067] Moreover, since the pointing device 78 is arranged at the connection section 67, it is not necessary to provide the tooth space which arranges a pointing device 78 to dedication, and a pointing device 78 can be arranged efficiently. Therefore, since the whole is further made to a compact, spoiling portability is lost further. In addition, a pointing device 38 may be arranged to a display 13.

[0068] In addition, the auxiliary operation keys 76 and 76 prepared in side-face 52c of the body 52 arranged at an upper part

[of the information display of a display 64], and ** side in the 2nd condition Since it constitutes so that

it may operate simultaneously with the actuation keys 65 and 65 of the actuation keys 55 and 55 of surface part 52a of 1 of a body 52, --, surface part 53a of 1 of a display 53, and --, respectively, Two kinds of functions when not operating simultaneously with the case where the auxiliary operation key 76 is operated simultaneously by the actuation keys 55 and 55, -- and the actuation keys 65 and 65, and -- can be given.

[0069] Therefore, the function of the actuation keys 55 and 55, -- and the actuation keys 65 and 65, and -- can be increased further.

[0070]

[Effect of the Invention] the condition that the connection section with which a display is made to connect pivotable to a body made axis of rotation of the display to a body meet in the direction which intersects perpendicularly with the surface part of 1 of a body as explained in full detail above according to the personal digital assistant of this invention -- this -- it arranges in the location between two separated actuation key areas which was prepared in the surface part of 1. For this reason, if a display is laid on top of a body, for example so that at least one side of two separated actuation key areas may usually be covered even if it increases the number of the actuation keys of a body It can prevent using the whole as a compact and spoiling portability, and by rotating a display to a body if needed, if it is made to expose two separated actuation key areas, the number of actuation keys can be increased and operability can be raised.

[0071] Therefore, without spoiling portability, the number of actuation keys can be increased if needed, and operability can be raised.

[0072] Moreover, according to the personal digital assistant of this invention, since the pointing device is arranged at the connection section or a display, it is not necessary to provide for a body at dedication the tooth space which arranges a pointing device, and a pointing device can be arranged efficiently.

[0073] Therefore, since the whole is further made to a compact, spoiling portability is lost further.

[0074] Furthermore, according to the personal digital assistant of this invention, even if it increases the number of the actuation keys of a body, it is considering as the 1st condition of it being parallel and piling up a display to a body so that one side of two separated actuation key areas may usually be

covered. It can prevent certainly using the whole as a compact certainly and spoiling portability. By considering as the 2nd condition of exposing two separated actuation key areas, while rotating a display to a body if needed, and this display's intersecting perpendicularly to a body and projecting in the side of 1 from this body, the number of actuation keys can be increased and operability can be raised.

[0075] Therefore, after preventing spoiling portability certainly, the number of actuation keys can be increased if needed, and operability can be raised.

[0076] In order that a display may pass the voice from the voice output section prepared in the surface part side of said 1 of a body from output voice passage opening in the 1st condition, it becomes unnecessary in addition, to prepare the voice output section in a display according to the personal digital assistant of this invention.

[0077] Therefore, magnitude of the display of a display can be enlarged further.

[0078] Furthermore, according to the personal digital assistant of this invention, even if it increases the number of the actuation keys of a body, it is considering as the 1st condition of it being parallel and piling up a display to a body so that both two separated actuation key areas may usually be covered. It can prevent certainly using the whole as a compact certainly and spoiling portability. By considering as the 2nd condition of exposing two separated actuation key areas, while rotating a display to a body if needed, and this display's intersecting perpendicularly to a body and projecting in the method of both sides from this body, the number of actuation keys can be increased and operability can be raised.

[0079] Therefore, after preventing spoiling portability certainly, the number of actuation keys can be increased if needed, and operability can be raised.

[0080] In addition, since a display is enlarged so that both two separated actuation key areas may be covered, a nearby actuation key many can be prepared in a display, consequently the operability of alter operation can be raised further.

[0081] Furthermore, since according to the personal digital assistant of this invention the auxiliary operation key prepared in the side face of the body arranged in the 2nd condition at an upper part

[of the information display of a display] and ** side is constituted so that it may operate simultaneously

with the actuation key of the surface part of 1, two kinds of functions when not operating simultaneously with the case where an auxiliary operation key is operated simultaneously by the actuation key of the surface part of 1 can be given.

[0082] Therefore, the function of an actuation key can be increased further.

CLAIMS

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The body with which the actuation key has been arranged in the surface part of 1, and the display which has the display which performs an information display, It has the connection section with which these bodies and a display are made to connect pivotable. In said surface part of 1 of said body It is the personal digital assistant which two separated actuation key areas are prepared and is characterized by said connection section arranging axis of rotation of said display to said body in the location between said two separated actuation key areas in the condition of having made it meeting in the direction which intersects perpendicularly with said surface part of 1.

[Claim 2] The personal digital assistant according to claim 1 characterized by arranging the pointing device at said connection section or said display.

[Claim 3] While said displays are parallel and overlap to said body, only one side of said two separated actuation key areas The 1st condition of a wrap, The personal digital assistant according to claim 1 or 2 characterized by supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas while intersecting perpendicularly to said body and projecting in the side

of 1 from this body.

[Claim 4] The personal digital assistant according to claim 3 which the voice output section which performs a voice output is prepared in said surface part side of 1 at said body, and is characterized by forming output voice passage opening which makes said display pass the voice from said voice output section in said 1st condition.

[Claim 5] Said display is a personal digital assistant according to claim 1 or 2 characterized by intersecting perpendicularly with the 1st condition of a wrap to said body in said both two separated actuation key areas while it is parallel and overlapping to said body, and supposing that it is pivotable between the 2nd condition of exposing said both two separated actuation key areas while projecting in the method of both sides from this body.

[Claim 6] Claim 3 characterized by arranging the actuation key of said surface part of 1, and the auxiliary operation key operated simultaneously in the side face of said body arranged in said 2nd condition at an upper part

[of the information display of said display], and ** side thru/or the personal digital assistant of five given in any 1 term.

[Translation done.]

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